

Please add Claims 29-31.

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29. A nucleic acid molecule encoding a polypeptide or peptide thereof co-segregating in mutated form with Autoimmune Polyendocrinopathy Candidiasis Ectodermal Dystrophy (APECED) which is selected from the group consisting of:
- (a) a nucleic acid molecule comprising a nucleic acid molecule encoding the polypeptide having the amino acid sequence of Fig. 2A;
 - (b) a nucleic acid molecule comprising the nucleic acid molecule having the nucleotide sequence of Fig. 2A that encodes the amino acid sequence of Fig. 2A;
 - (c) a nucleic acid molecule hybridizing to the nucleic acid molecules of (a) or (b); and
 - (d) a nucleic acid molecule which is degenerate to the nucleic acid molecule of (c).
30. The nucleic acid molecule of claim 29, wherein said polypeptide has the function of a transcription factor or a transcription-associated factor.
31. The nucleic acid molecule of claim 29, wherein said polypeptide comprises two double-paired zinc finger motifs.
32. A nucleic acid molecule which is a mammalian homologue of the nucleic acid molecule of claim 29.
33. The nucleic acid molecule of claim 32 wherein the molecule is a murine homologue.

34. The nucleic acid molecule of claim 33 selected from the group consisting of:
- (a) a nucleic acid molecule comprising a nucleic acid molecule encoding the polypeptide having the amino acid sequence of Fig. 14;
 - (b) a nucleic acid molecule comprising the nucleic acid molecule having the nucleotide sequence of Fig. 14 that encodes the amino acid sequence of Fig. 14;
 - (c) a nucleic acid molecule hybridizing to the nucleic acid molecule of (a) or (b); and
 - (d) a nucleic acid molecule which is degenerate to the nucleic acid molecule of (c).

35. A nucleic acid molecule deviating by at least one mutation from the nucleic acid molecule of claim 29 wherein said mutation co-segregates with APECED and is

- (i) an insertion;
- (ii) a deletion;
- (iii) a substitution; and/or
- (iv) an inversion;

and wherein said mutation further results in a loss of function or a gain of function of the polypeptide encoded by a nucleic acid molecule of claim 29.

36. The nucleic acid molecule of claim 35, wherein said insertion, which is a duplication of 4 nucleotides (CCTG) normally found at position 1086-1089, is a 4 nucleotide insertion at the nucleotide position 1085 or 1090, an insertion of an adenosine at position 1284, or an insertion of a cytosine at position 1365 of the nucleotide sequence of Fig. 2A.
37. The nucleic acid molecule of claim 35, wherein said deletion is a 13 nucleotide deletion of nucleotides 1085-1097, a deletion of the thymidine at position 1051 or a deletion of the cytosine at position 1309 or 1313 of the nucleotide sequence of Fig. 2A.

38. The nucleic acid molecule of claim 35, wherein said substitution is a cytosine to thymidine exchange at nucleotide position 889, a guanosine to thymidine exchange at nucleotide position 358, an adenosine to guanosine exchange at nucleotide position 374, a guanosine to adenosine exchange at nucleotide position 1052, or a cytosine to adenosine exchange at nucleotide position 1094 of the nucleotide sequence of Fig. 2A.
39. The nucleic acid molecule of claim 35, wherein said loss of function is a loss of macromolecule binding properties.
40. The nucleic acid molecule of claim 35, wherein said gain of function is involved in molecular interaction.
41. A fragment of the nucleic acid molecule of claim 29 or claim 35 comprising at least about 14 nucleotides.
42. A nucleic acid molecule which is complementary to a nucleic acid molecule of claim 29 or claim 35.
43. The nucleic acid molecule of claim 29 or claim 35 wherein the molecule is DNA or RNA.
44. A primer pair which hybridizes under stringent conditions to the nucleic acid molecule of any one of claims 29, 35, or 42.
45. A vector comprising the nucleic acid molecule of claim 29 or claim 35.
46. A host transformed with the vector of claim 45.
47. The host of claim 46 which is a bacterium, a yeast cell, an insect cell, a fungal cell, a mammalian cell, a plant cell, a transgenic animal or a transgenic plant.

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48. A method of producing a polypeptide of claim 29 or claim 35 comprising culturing the host of claim 46 and isolating said polypeptide from said culture or said host.
49. A polypeptide produced by the method of claim 48.
50. A polypeptide encoded by the nucleic acid molecule of claim 29 or claim 35.
51. A compound derived from the polypeptide of claim 50 and having essentially the same three dimensional structure thereof.
52. An antibody that specifically recognizes the polypeptide of claim 50.
53. An antibody that specifically recognizes the compound of claim 51.
54. A pharmaceutical composition comprising the nucleic acid molecule of claim 29 or claim 35.
55. A method for testing for carriership for APECED or for a corresponding disease state comprising testing a sample obtained from a prospective patient or from a person suspected of carrying a predisposition for a mutation in the nucleic acid molecule of claim 29.
56. A method for testing for carriership for APECED or for a corresponding disease state comprising testing a sample obtained from a prospective patient or from a person suspected of carrying a predisposition for a mutated form of the polypeptide as defined in claim 29 in an immunoassay.
57. A pharmaceutical composition comprising the polypeptide of claim 50.